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SCHOOL AND SOCIETY

Volume XV SATURDAY, FEBRUARY 18, 1922 Number 373

STATISTICS OF REGISTRATION IN AMERICAN UNIVERSITIES AND COLLEGES, 1921

STUDENT attendance at American universities and colleges, which surged upward after the war and ebbed only a trifle in 1920-21, is still rising. All records are broken for the present collegiate year, according to detailed reports received from 30 typical universities and general reports from a total of 123 universities and colleges, covering enrollment on November 1, 1921.

All of the thirty universities report an increase for 1921 over 1920. For 29 of them the gain is seven per cent. in full-time regular students and 17 per cent. in grand total enrollment. Their 1921 gain over the attendance five years earlier, 1916, is 55 per cent. in grand total enrollment. Although detailed figures on the other universities and colleges listed in this article are not available for 1916 there is a probability that the rate of increase is about the same.

Table I gives figures in detail of universities which have been included for some years in statistical articles in *Science* and later in SCHOOL AND SOCIETY. Table III supplies a less detailed report upon students, faculty and administrative officers of 93 additional institutions now considered for the first time in this series with the aim of making the study broader and more significant. The institutions asked to furnish figures were those on the list approved by the Association of American Universities; a few did not respond to the request and are not included.

Following the differentiation introduced in this series last year, Tables I, II and III are arranged to bring out clearly the enrollments of full-time and of part-time students. The full-time regular student is defined for this series as a student who has completed a four-year high school course and is devoting his full time during the collegiate year to study in a curriculum leading to a degree. The student taking college and university courses in late afternoon, evening and Saturday classes is listed as a part-time student. The grand total figures include full-time regular students, part-time students and summer school students of 1921, but do not include extension and correspondence students who are, however, recorded in Table I.

Table II lists the 25 largest institutions. Here the University of California maintains its lead in having the largest enrollment in the United States, and probably in the world, of full-time regular students, 11,505. The grand total enrollment is 17,909; counting the 22,145 citizens who are taking extension courses the University of California is giving instruction to a total of 40,054 persons.

Columbia University again has the highest place in grand total enrollment of resident students for 1921-22 and in summer school attendance for 1921. The Columbia registration of 26,006 includes 11,809 in the summer session and 6,845 students in university extension courses; the latter are part-time students whose work is "of character and grade of a college or professional school" and may be

TABLE I

	California	Chicago	Cincinnati	Columbia	Cornell	Harvard	Illinois	Indiana	Iowa	Johns Hopkins	Kansas	Michigan	Minnesota	Missouri	Nebraska	Northwestern	Ohio State	Pennsylvania	Pittsburgh	Princeton	Stanford	Syracuse	Texas	Tulane	Univ. of Washington	Virginia	Washington University	Western Reserve	Wisconsin	Yale
College men	1879	1474	375	1946	1087	2678	1158	1077	2940	393	1252	3067	1978	1123	760	760	1859	867	725	1959	2142	739	1622	319	613	927	506	542	1105	1042
College women	3489	1155	566	687	654	----	1453	1072	‡	----	968	1492	1452	637	1016	1056	924	----	338	----	‡	624	1363	287	1046	----	581	703	1305	----
Engineering	1311	----	971	201	1538	261	1655	----	393	313	646	1936	1274	1030	516	156	1453	595	312	95	218	332	654	202	724	192	320	----	1319	515
Law	431	319	85	643	97	999	123	109	204	----	169	375	297	119	222	207	208	232	160	----	142	201	323	82	143	308	173	202	201	213
Medicine	277	247	228	366	217	472	351	319	394	348	138	609	332	75	261	460	275	438	167	----	127	174	255	381	----	152	233	155	162	163
Graduate school	657	832	145	1301	444	350	529	96	280	231	109	428	628	120	190	232	331	882	----	184	145	215	100	42	137	58	71	31	816	373
Agriculture	532	----	----	----	1103	----	989	----	----	----	----	----	747	402	423	----	956	----	----	----	----	94	----	----	----	----	----	----	----	22
Architecture	5	----	----	59	92	79	†	----	----	----	----	†	†	----	----	----	†	32	‡ 240	----	15	403	----	104	143	----	186	----	----	42
Art	†	----	----	----	----	†	†	80	†	----	----	†	148	125	738	318	448	2528	352	----	----	1050	†	133	1105	----	150	----	1143	----
Commerce	1236	657	----	376	----	466	1977	64	†	----	----	----	----	----	----	----	----	----	----	----	----	----	----	165	----	----	81	255	----	----
Dentistry	397	----	----	13	----	205	200	----	255	----	----	396	392	----	114	536	180	598	660	----	----	----	----	----	----	----	----	----	----	129
Divinity	----	178	----	----	----	61	----	----	----	----	225	148	659	225	451	----	680	1034	129	----	64	135	673	163	229	30	----	90	374	250
Education	†	227	359	3246	----	50	264	230	†	----	----	†	†	----	----	----	†	----	----	----	----	320	----	----	106	----	----	----	----	34
Forestry	†	----	----	----	----	†	----	----	†	----	----	†	----	218	†	31	†	----	----	----	----	----	†	67	36	----	----	----	259	----
Journalism	----	----	----	138	----	----	†	110	†	----	291	----	----	†	†	283	----	†	----	----	----	----	----	37	130	----	----	----	95	89
Music	†	----	----	----	----	†	87	188	†	----	----	----	----	†	----	----	----	----	----	----	----	----	77	67	120	----	----	131	83	----
Pharmacy	193	----	----	583	----	----	259	----	75	----	92	78	131	----	81	----	189	----	339	----	----	----	----	----	----	----	----	----	----	----
Veterinary	----	----	----	----	75	----	----	----	----	----	----	----	----	†	----	----	85	31	----	----	----	392	291	----	55	----	181	153	71	862
Other courses	1309	52	105	234	----	50	39	----	113	81	24	821	124	----	----	181	40	----	----	----	172	----	962	91	104	----	67	47	199	24
Deduct duplicates	211	326	----	----	----	----	----	608	----	----	264	123	138	115	274	----	139	----	----	----	----	----	----	----	----	----	----	----	----	----
Total	11505	4815	2834	9793	5312	5671	9084	2737	4594	1369	3649	9227	8024	3959	4670	4220	7521	7445	3182	2238	2711	4670	4463	1902	4521	1667	2540	2215	7196	3710
Part-time	270	1303	1391	6845	326	402	----	63	----	1765	----	----	?	275	70	2490	----	4027	3140	15	----	483	----	434	134	----	626	----	148	355
Summer session	7864	6458	934	11809	2739	2377	1976	1700	1750	949	1309	2797	2687	----	1589	1369	1562	1768	1396	----	1132	715	2588	1464	1930	2129	----	1373	4547	----
Deduct duplicates	1730	----	269	2441	----	370	862	811	581	400	693	1497	----	----	489	556	888	700	150	----	----	685	815	322	520	----	----	----	1384	24
Gd. tot., Nov. 1, '21	17909	12576	4390	26006	8377	8080	10198	3659	5760	3683	4265	10527	10711	4234	5841	7523	8195	14030	7568	2253	3843	5183	6236	3478	6065	4096	3099	3588	10507	4041
Gd. tot., Nov. 1, '16	9575	9227	3034	13591	5274	6306	6542	2855	3352	2559	3298	7271	5725	3912	5038	5390	5756	9042	3307	1555	2014	4041	3926	2457	----	2409	1341	2065	7378	3306
Gd. tot., Nov. 1, '11	6051	5914	1423	8642	6041	5511	5217	2418	2081	1075	2443	5977	4783	2780	2677	3481	3877	5400	----	1543	1684	3408	2669	2126	----	804	1133	1331	5492	3224
Exten. courses	22145	----	----	----	----	----	----	3613	184	----	2010	----	2191	815	321	----	----	----	1262	----	----	934	----	----	1723	339	1416	249	18675	----
Teaching staff	979	355	384	?	595	857	729	194	230	363	303	659	750	328	358	485	585	1000	522	233	353	450	300	358	262	80	357	296	625	520
Administrative staff	69	55	42	?	?	181	29	27	----	17	19	35	9	?	24	40	14	100	20	----	30	25	32	25	24	17	----	16	24	19

†Included elsewhere.

TABLE II

University	Regular Students Full-time	Rank	Students All Resident	Rank
California	11,505	1	17,909	2
Columbia	9,793	2	26,006	1
Michigan	9,227	3	10,527	8
Illinois	9,084	4	10,198	9
Minnesota	8,024	5	10,711	7
Ohio State	7,521	6	8,195	12
Pennsylvania	7,445	7	14,030	4
Wisconsin	7,196	8	10,507	8
Harvard	5,671	9	8,080	13
Cornell	5,312	10	8,377	11
Boston	5,246	11	9,215	10
Chicago	4,815	12	12,576	5
Nebraska	4,670	13	5,841	18
Iowa	4,594	14	5,760	19
U. of Wash'n	4,521	15	6,065	17
Texas	4,463	16	6,236	16
Northwestern	4,220	17	7,523	15
Syracuse	4,670	18	5,183	20
Missouri	3,959	19	4,234	22
Iowa S. C.	3,896	20	3,896	23
Yale	3,710	21	4,041	24
Kansas	3,649	22	4,265	21
Mass. Inst. Tech.	3,505	23	3,505	25
Fordham	3,435	24	3,760	24
Pittsburgh	3,182	25	7,568	14
C. City N. Y.	2,107	....	15,362	3
New York U.	.....	....	11,514	6

accepted toward an academic degree.

The University of Michigan, the University of Illinois and the University of Minnesota hold third, fourth and fifth places as they did in 1920 for enrollment of full-time regular students.

In the list of the 25 largest institutions, Boston University, the University of Washington, Iowa State College, Fordham and the Massachusetts Institute of Technology come in from among institutions not formerly considered in this series.

Analysis of Table I discloses interesting facts about the various departments of these thirty typical universities.

In liberal arts the University of California retains its lead of a decade, although having 194 fewer men and 109 fewer women students in this college than in 1920. Michigan, second on the list, has 43 fewer women students in the arts college, Chicago has 46 fewer men and 38 fewer women, Columbia (Barnard) has 17 fewer women and Stanford has 66 fewer men and women. The size order of the ten largest liberal arts colleges is as follows: California 5,368, Michigan 4,559, Minnesota 3,430, Texas 2,985, Ohio State 2,783, Harvard 2,678, Illinois 2,591, Stanford 2,142. The size order for men undergraduates in five largest liberal arts colleges is: Michigan 3,067, Harvard 2,678, Princeton 1,959, Columbia 1,946, California 1,879.

In engineering students, the Massachusetts Institute of Technology (not in the list of thirty) has a large lead, with 3,505 students. Michigan has 1,936 engineering and chemistry students, Illinois is third with 1,655, Cornell is fourth with 1,538 and Ohio State is fifth with 1,453.

The numerical order of the five largest law schools is: Harvard 999, Columbia 643, California 431, Michigan 375, Texas 323.

The five largest schools of medicine are: Michigan 609, Harvard 472, Northwestern 460, Pennsylvania 438, Tulane University of Louisiana 381.

In non-professional graduate students the order of the five largest universities is Columbia 1,301, Pennsylvania 882, Chicago 832, California 657, Wisconsin 462.

Of nine universities of the list of 30 which have agricultural colleges, five have fewer students than 1920 and the total loss for all nine is 309 students, or about five per cent. As compared with five years ago the loss for these nine agricultural colleges is 781 students, or 11 per cent. The 1921 numerical order is: Cornell 1,108, Illinois 989, Ohio State 956, Wisconsin 816, Minnesota 747.

The five largest departments of architecture are: Pennsylvania 240 (including art also), Cornell 92, Harvard 79, Columbia 59, Washington 58. The drop in students in architecture for the past several

years has corresponded with the business slump.

The number of students in schools of commerce and finance for 1921 is practically the same as in 1920, indicating that the extraordinarily expansion of the previous few years has stopped. The School of Commerce Accounts and Finance of New York University has 5,067 students, not differentiated as to full-time and part-time. First of the 30 is the Wharton School of the University of Pennsylvania—oldest of all collegiate schools of business—with 2528 students. Illinois is second with 1,977, California is third with 1,236, Wisconsin is fourth with 1,143, and the University of Washington is fifth with 1,105 business students.

There were slight decreases in students in dentistry in nine of 15 universities having dental schools, with a total of 4,447 students for 1921 as compared with 4,638 students in 1920. The enrollments of the five largest dental departments are: Pittsburgh 660, Pennsylvania 598, Northwestern 536, California 397, Michigan 396.

Of the three divinity schools in the list of thirty universities, the order of size is: Chicago 178 students, Yale 129 students, Harvard 61 students.

Teachers College of Columbia University, registering 3,246 students or 18 per cent. more than 1920, is by far the largest school of education in this country and doubtless in the world. The 1921 enrollment includes 1,781 students in education, and 1,465 in practical arts. The University of Pennsylvania reports 1,034 students in education, Ohio State 680, Texas 673, and Minnesota 659.

Syracuse has 320 students in forestry; the University of Washington has 106; Yale has 34. In six other institutions students take forestry but are recorded in other departments.

Wisconsin continues to have the most students in journalism, 259; with Missouri second, 218, and Columbia third with 138 students in the Pulitzer School.

Kansas now has 291 music and art students. Northwestern's music students are 283 in number, Indiana has 188, Wisconsin 95 and Yale 89 students in music.

In departments of pharmacy the five largest are: Columbia 583, Pittsburgh 339, Illinois 259, Ohio State 189, Western Reserve 131.

The enrollment order of the three schools of veterinary medicine follows: Ohio State 85, Cornell 75, Pennsylvania 31; total 191. Five years ago there were four schools with a total of 407 students.

Table I shows how the urban universities are making collegiate work available for secondary school teachers and others who take late afternoon, evening and Saturday courses; the figures are given as part-time enrollment.

The order of size in 1921 summer school enrollment for the ten largest follows: Columbia 11,809, California 7,864, Chicago 6,458, Wisconsin 4,547, College of City of New York 3,300, Colorado 3,264, Michigan 2,797, Cornell 2,739, Minnesota 2,687, Texas 2,588. In 241 universities and degree-granting colleges from which the present writer obtained reports in another connection, the 1921 summer enrollment was 147,032 as compared with 111,617 in 1920. The gain is 35,415 or 32 per cent. The distribution of increase geographically is surprisingly uniform. Taking the 50 largest summer schools, the increase in 11 institutions in the North Atlantic Division of states was 29 per cent.; in 18 institutions in the North Central Division the increase was 23 per cent.; in seven institutions in the South Atlantic Division the increase was 27 per cent.; in seven institutions in the South Central Division

the increase was 26 per cent.; in seven institutions in the Western Division the increase was 27 per cent.

An effort was made to distinguish between teachers and administrators in the detailed reports of the thirty universities, the definition being "teaching staff, not including laboratory assistants" and "administrative officers, not including clerks and stenographers."

In Table III teachers and officers are given together as a matter of convenience in tabular presentation.

The following paragraphs explain statistics presented in Table I and give additional information.

The full-time enrollment of the University of California is 434 larger than in 1921, a gain of 4 per cent. There were small decreases in both men and women in liberal arts, in engineering and in the non-professional graduate courses. In all other departments gains are reported. Students in art, education, library economy and music are included in the table made under liberal arts. The enrollment listed under the courses embraces 1,309 students in the Junior College Department, Southern Branch, at Los Angeles,—clearly full-time regular students who proceed for two additional years for university degrees. There are 1,300 in curricula for teachers (often termed unofficially the Teachers College of the Southern Branch). This portion of the university was formerly a state normal school. Its students are graduates of four-year high schools and they are devoting their full time to study which yields approximately one and one half years of credit toward an A. B. degree; but, as the course covers two years only, these students are not included in the table as full-time regular students within the scope of the definition adopted. It is officially stated that there are no degree-giving curricula in the University of California which do not have a full high school matriculation requirement, excepting the college of pharmacy, which will go on full high school matriculation basis in the autumn of 1922. Detailed figures as to California extension enrollment follow: academic courses 16,227; agriculture 1,808; correspondence 4,110; total 22,145.

A trifling loss in the enrollment of liberal arts students in the University of Chicago is offset by small gains in every other department; the total increase in full-time regular attendance is 133 for 1921 over 1920. Under the term other courses are given 52 students in the Graduate School of Social Service Administration. Following the precedent established in last year's article the students in late afternoon, evening and secondary classes of college grade, tabulated in the 1918 and 1919 reports under other courses, are placed under the heading part-time students. There were 1,303 in 1921, almost exactly the same number as in 1920.

The University of Cincinnati full-time regular enrollment is larger by 146 students than a year ago, with slight increases in all departments except medicine, which has 13 fewer students, and law, which had 85 in both years. Students taking regular courses in nursing and health are given under the heading other courses. The part-time students are 500 in the evening commerce and 891 in the evening liberal arts collegiate courses. The summer session, instituted last summer, attracted 934 students.

The difficulty of sharp distinction as to full-time and part-time students is manifest in the enrollment of Columbia University. Many hundreds of the University Extension students take as much full-time work as the regular undergraduate and graduate students. In strict obser-

TABLE III

Institution	Regular Students Full-Time	Students All Residents	Faculty Staff
Allegheny	548	650	37
Amherst	521	521	59
Bates	556	556	40
Beloit	535	631	42
Boston	5,246	9,215	421
Bowdoin	445	458	....
Brooklyn Poly	456	1,263	55
Brown	1,530	1,641	106
Bryn Mawr	457	542	73
California I. of T.	436	436	....
Case	666	708	69
Catholic U.	980	980	....
Clarkson	225	225	....
Clark	282	337	38
Coe	705	928	60
Colgate	678	678	53
C. City of N. Y.	2,107	15,362	422
C. of St. Elizabeth	183	183	39
C. of Wooster	786	832	43
Colorado	601	646	61
Columbia	9,793	26,006	....
Cornell C. (Ia.)	745	825	60
Cornell	5,312	8,377	595
Dartmouth	2,011	2,011	....
Denison	825	825	52
De Pauw	1,235	1,310	68
Dickinson	463	473	27
Earlham	438	477	40
Fordham	3,435	3,760	158
Franklin	232	481	24
Goucher	875	875	76
Hamline	530	557	44
Harvard	5,671	8,080	1,038
Haverford	226	226	....
Hobart	168	168	29
Illinois Woman's C.	240	252	35
Indiana	2,737	3,659	221
Iowa State	3,896	3,896	460
Johns Hopkins	1,369	3,683	380
Kenyon	210	222	19
Lafayette	818	832	....
Lawrence	1,142	1,235	64
Lehigh	1,052	1,200	102
Leland Stanf'd Jr.	2,711	3,843	380
Marietta	271	312	....
Mass. Inst. Tech.	3,505	3,505	409
Miami	1,228	1,228	....
Middlebury	494	859	44
Milwaukee-Downer	275	340	50
Mount Holyoke	782	782	109
Mun'pal U. Akron	645	675	60
New York U.	.....	11,514	....
Northwestern	4,220	7,523	525
Oberlin	1,607	1,688	126
Ohio State	7,521	8,195	599
Ohio Wesleyan	1,629	1,628	130
Penn. State	3,123	5,427	355
Pomona	750	777	80
Princeton	2,238	2,253	233
Purdue	2,825	2,925	275
Randolph-Macon Woman's C.	612	612	61
Reed	297	300	33
Rensselaer Poly. I.	1,109	1,109	....
Ripon	461	461	....
Rockford	328	482	47
Rose Poly	236	236	24
Rutgers	1,052	1,661	114
Smith	1,999	1,999	....
State C. of Wash.	1,911	1,911	....
State U. of Iowa	4,594	5,760	310
Stevens Inst. of T.	802	802	71
Swarthmore	510	510	50
Syracuse	4,670	5,183	475
Trinity (Conn.)	264	264	26
Trinity (S. C.)	372	372	45
Tufts	2,091	2,091	309
Tulane	1,902	3,578	383
Union	1,198	1,322	....
U. of Alabama	1,890	3,115	166
U. of California	11,505	17,909	1,048
U. of Chicago	4,815	12,576	410
U. of Cincinnati	2,834	4,890	426
U. of Colorado	2,459	4,862	262
U. of Illinois	9,084	10,198	758
U. of Kansas	3,649	4,265	322
U. of Kentucky	1,414	1,764	143
U. of Maine	1,294	1,457	116
U. of Michigan	9,277	10,527	694
U. of Minnesota	8,024	10,711	759
U. of Missouri	3,959	4,234	328
U. of Montana	1,221	1,790	82
U. of Nebraska	4,670	5,841	382
U. of N. Carolina	1,609	1,609	120
U. of N. Dakota	1,071	1,406	131
U. of Oklahoma	3,013	4,570	176
U. of Oregon	2,164	3,043	172
U. of Pennsylvania	7,445	14,030	1,100
U. of Pittsburgh	3,182	7,568	542
U. of Rochester	877	1,202	78
U. of S. Dakota	739	930	68
U. of Texas	4,463	6,236	332
U. of Vermont	1,021	1,036	174
U. of Virginia	1,667	4,096	97
U. of Washington	4,521	6,065	286
U. of W. Virginia	1,640	1,725	144
U. of Wisconsin	7,196	10,507	649
Vanderbilt	1,112	1,112	153
Vassar	1,140	1,140	144
Wabash	649	842	84
Washburn	465	465	29
Wash. & Jefferson	454	550	31
Washington & Lee	745	745	47
Washington U.	2,540	3,099	357
Wellesley	1,548	1,548	147
Wells	230	230	44
Wesleyan	545	545	....
Western C. of Women	320	320	43
Western Reserve	2,215	3,588	312
Whitman	602	602	44
William Jewell	288	288	....
Williams	583	583	58
Worcester Poly.	498	498	66
Yale	3,710	4,041	539
Totals	243,895	366,608	

vance of the definition given, these extension students are presented in the table under the part-time heading. The 1921 Columbia enrollment figures shows decreases of two per cent. in Barnard College, five per cent. in medicine and four per cent. in university extension. The number of Freshmen admitted to the college was cut from 559 to 487. All other departments show increases over 1920 of six to 20 per cent.

Cornell's total enrollment marks an increase of 137 over that of 1920. The winter course in agriculture was taken by 326 students.

The report from Harvard discloses an increase over 1920 of 188 full-time regular students and 294 in grand total enrollment. Under the heading other courses in Table I are included 30 students in the School of Public Health, and 20 taking applied biology in the Bussey Institution. The part-time students embrace 103 students in the Graduate School of Education, 232 students in the Graduate School of Arts and Sciences and 67 special students in arts and sciences. Harvard does extension work in cooperation with other institutions near Boston; no figures are presented.

With the exception of agriculture and dentistry, all departments in the University of Illinois have more students than a year ago, the full-time gain being 834 or approximately 10 per cent. The 114 students in architecture are reported under engineering in Table I and 158 students in journalism are reported under the liberal arts college figures. The 139 students listed under other courses are taking library science.

Indiana's 1921 regular full-time registration is 217 or nine per cent. more than in 1920. Nearly all departments show an increase, with the greatest gain in the new work in education. The extension students include 2,833 taking agriculture and 780 work in correspondence courses.

There are 317 more students at the State University of Iowa than in 1920, there being increases in all lines except engineering. The 143 students listed under other courses are in the school of nursing.

Johns Hopkins University, with a trifling loss in engineering and a restriction in medical students, shows a gain of 57 in the full-time regular total. The 84 students listed under other courses are taking hygiene and public health. The 1921 summer session had more than double the 1920 attendance.

The full-time regular enrollment at the University of Kansas, which dropped in 1920, has mounted to 3,649 students, which is 197 more than in 1920 and 69 more than in 1919. Under extension totals are included 725 academic students and 1,285 citizens taking correspondence courses.

The University of Michigan enrollment of 9,227 full-time regular students is 769 larger than in 1920. Students taking architecture are included under engineering in the table; students in commerce, forestry and journalism are included in the College of Literature, Science and Arts. Training in library economy is given in the summer session. The enrollment for medicine embraces students in both allopathic and homeopathic medicine. It is estimated that the grand net total of students at Michigan for the year is 11,300.

The University of Minnesota has 587 regular full-time students more than in 1920, having increases in practically all departments. Students in architecture are included under engineering, as are the 167 men in the school of mines. Students in forestry are covered under agriculture.

The 124 listed under other courses are in the nursing school and the school for dental hygienists.

The largest increase in American universities for the year is that of Missouri, where the total of 4,234 full-time regular students is 974 larger than in 1920. There are increases in every department except law, in which the enrollment is two lower than the preceding year. The engineering total includes 563 in the School of Mines and Metallurgy at Rolla.

Slight decreases in the college of arts and sciences and the law school of the University of Nebraska were offset by increases in all other departments so that the total full-time regular enrollment for 1921 exceeds that of 1920 by 259 students. Students in journalism are included in the college of arts and science; students in music are included under art.

New York University, always included in the list of thirty institutions about which detailed facts are given, is reluctantly omitted from Table I, as the system of registration is such that no differentiation is made between full-time and part-time students. The grand total enrollment of New York University is given in Table III. Detailed statistics are presented instead for the University of Washington, which typifies the north-western section of the country not formerly represented in these articles.

Small increases in all departments totalled 117 students more in 1921 than in 1920 at Northwestern University. In the full-time regular enrollment of 4,220 there are 2,646 men and 1,574 women. The 2,490 part-time students listed in Table I take work in the university's School of Commerce in Chicago, which includes 121 in journalism. The 181 students given under other courses are 19 men and 162 women taking full-time collegiate courses in speech.

The Ohio State University report gives details showing 5,539 men and 1,982 women who are full-time regular students, an increase of 365 over 1920. A loss of 301 students in agriculture was more than balanced by increases in other schools. The figures under medicine embrace 223 in regular and 52 in homeopathic medicine. Students in journalism are included under commerce. The 40 students listed under other courses are taking applied optics.

An increase of 1,082 regular full-time students over 1920 is shown in the University of Pennsylvania report. The two departments in which there are fewer students are engineering and dentistry. The U. of P. dental school, with 598 students, continues to be the largest in the United States. In education 1,034 students are reported. The Wharton School of Commerce and Finance has 317 students more than in 1920.

The University of Pittsburgh figures show a notable increase. There are 275 more full-time regular students and 1,664 more students in grand total resident attendance now than in 1920. The latter increase was due in considerable measure to the summer school's gain of more than 500. The part-time enrollment includes 1,041 students taking economics in evening courses. Students in mines to the number of 116 are counted in with the engineering total of 312.

In his annual report, President Hibben gives details of Princeton's 1921-22 enrollment, which is "by far the largest in the history of the University." The total is 2,253 as compared with 1,814 in 1920-21. A general plan for the limitation of students at Princeton is shortly to be presented by the faculty to the trustees.

An increase of 262 students in the 1921 full-time regular enrollment of Leland Stanford Junior University is disclosed in a comparison with 1920 figures. At Stan-

ford "the summer quarter students belong to the year 1920-21, "but for comparative purposes in this presentation are credited to the year in which they actually studied, 1921.

There is an increase of 651, or 16 per cent., in the full-time regular enrollment of Syracuse University over 1920. The students listed under other courses in the table embrace 200 in home economics, 75 in public speech and dramatic art, 74 in nursing and 43 in library economy. Syracuse has 483 special students, included under the part-time classification.

With the exception of a loss of two students in pharmacy, every department of the University of Texas in 1921-22 has a larger enrollment than a year ago, the total increase being 261. The registration of 654 engineers includes 93 in mining. Under other courses are embraced 210 students in home economics, 69 in nursing and 12 in library economy.

The same falling-off in medical school attendance marked in certain other institutions is noticeable in the registration figures of the Tulane University of Louisiana, where the decrease is 137 from the 1920 enrollment of 518. Gains in the college and other departments bring the university numbers up to 1,902, or nearly 300 more than in 1920.

In ten years the attendance of the University of Virginia has increased over 100 per cent. It was 804 in 1911; in 1921-22 it is 1,667. This latter is only a trifle more than last year. The grand total figures jumped from 3,409 to 4,096, due largely to the great success of the new summer school of the university, which achieved a 1921 enrollment of 2,429.

The University of Washington, the new institution on the list of thirty to receive detailed analysis (replacing New York University) has 4,521 full-time regular students distributed as shown in Table I. The college, with 1,659 students, is followed numerically by the department of commerce and finance, which has 1,105 students. Under other courses are 39 students in the fisheries course and 16 in library economy. In the summer quarter there are two sessions of six weeks each; the first last summer had 1,782 students, the second 1,513, or 1,930 different students.

Washington University of St. Louis has 2,540 students in full-time regular courses, over 200 more than in 1920. The students under other courses include 147 in nurse's training and 34 in building contracting.

There are 157 more students at Western Reserve University than in 1920. A five-year course leading to engineering degrees has been arranged in cooperation with the Case School of Applied Science. The 153 students listed under other courses are divided as follows: School of Applied Social Science 110, library economy 43. The summer school is now conducted in connection with the Cleveland School of Education.

The tremendous growth of the University of Wisconsin during the past few years is not duplicated in 1921, but the full-time enrollment does show a five per cent. increase over 1920, and a ten per cent. increase in grand total enrollment. Under the figures for other courses are included 23 students in library economy.

Yale's 1920 enrollment was the largest in the history of the university; the 1921 enrollment is higher by 46. The increase is due to the taking in last fall of a freshman class of 862, as compared with 679 a year preceding. The Sheffield Scientific School has 515 students this year.

The statistics presented in Table III do not appear to require special comment, beyond reference to the general increase

in enrollment in what were formerly called small colleges.

RAYMOND WALTERS
SWARTHMORE COLLEGE

A COMPREHENSIVE STATE EDUCATIONAL PROGRAMME

EFFICIENCY is one of our modern idolatries. This is so in business, in industry, in private charity, in education. It has become an idolatry because we have lost sight of the ends for which the social machinery was created to serve. It finds its most mechanical expression probably in the form of statistics and system. But if one carefully reviews the literature of modern efficiency one must be struck by the fact that the leaders in the movement had no such mechanical conception of the thing they were initiating. They always attempted to relate mechanism to purpose. But more than that, they looked forward to possible changes in society and attempted to anticipate such changes and to direct them into constructive, useful channels.

One expression of this more spiritual aspect of efficiency is contained in what is known as the "planning department" of industrial establishment. These are agencies entirely divorced from the actual operating of the industrial establishments, though constantly informed by reports and observation as to what is going on in these establishments. Modern industry, to be successful, must watch the difference in tastes, the scientific advance, the change in world and local markets, new inventions, and the problems relating to marketing and distribution. Modern industry cannot keep up the pace if it keeps its nose to closely to the grindstone.

EDUCATIONAL VISION AND ROUTINE

EDUCATIONAL administration needs to learn the same lesson. We have tended to meet the demands of modern education on state educational administration, not by facing the educational problem frankly, but by merely increasing the machinery of education. To provide for the routine administration of education in the state we have built up a number of educational agencies. These agencies are very properly absorbed in the detail of the special problems assigned to them. They must carry on the operating duties efficiently. In the day's work there has been little time for the future. And yet, in a period of kaleidoscopic changes such as we have gone through, it was socially imperative that some special agency should have been looking to the future. Modern educational machinery in every state in this Union needs a planning department.

REORGANIZATION OF EDUCATIONAL MACHINERY

MANY of the states, aiming to simplify and coordinate the educational machinery, gave the powers of administration to a state board of education. This is the unquestioned tendency in the United States. But in their reorganization these states have failed to provide adequately in the state board of education for this comprehensive thinking and planning for the future. Instead of opening up, through the new boards of education, the opportunity for educational vision, they became involved in educational routine.

WISCONSIN'S STATE BOARD OF EDUCATION

THE State of Wisconsin did not undertake such a thoroughgoing revision of its educational machinery as other states did. But it did create a state board of education that is now aiming to carry out a conception of its duty that makes it correspond to the planning department of modern industry. In other words, it is interested in educational program and educational cooperation.

The Wisconsin State Board of Education was given important financial duties. The board felt that a state cannot spend money intelligently unless it has some educational policy, and consequently the interest of the state board of education has been directed to the formulation in cooperation with other educational agencies, of an educational policy for the state. This has been contrary to our policy of educational drift. Perhaps this is a way of saying that we have had no policy. At any rate we have been without comprehensive educational planning. In fact, such planning is regarded by high educational authority as "revolutionary." And I agree with the adjective. It is certainly revolutionary to substitute for educational drift a comprehensive, state-wide educational policy; for educational opportunism a courageous educational leadership prompted only by consideration of public welfare; for educational chaos a unity of service among the state's educational agencies, prompted by wholehearted cooperation; for educational camouflage a vigorous effort to meet educational needs long neglected.

TWO FUNDAMENTAL NEEDS

Two fundamental needs must be satisfied in order to remedy our present educational plight. These two needs are:

1. The substitution of a courageous educational leadership, prompted only by considerations of public welfare, for an attitude of educational opportunism, and
2. The substitution of a comprehensive, state-wide educational policy that will meet educational needs long neglected, for a habit of educational drift.

PRINCIPLES UNDERLYING AN EDUCATIONAL PROGRAM

THE problem of a competent and courageous educational leadership for the state need not concern us at this time because of the more pressing need for a comprehensive forward-looking educational program and because such a program will eventually develop competent leadership. The principles upon which such a program shall be based may be stated briefly as follows:

1. The welfare of every child is a primary concern of the state.
2. The state exists for the welfare of its citizens. It is a means to an end.
3. The duty of the state to require a minimum of education in the interest of its own security and progress.
4. The right of the state to provide comprehensive state-wide educational facilities of every grade of education open on equal terms to all citizens.
5. The right of the state to tax all the property, including the income or inheritance of people to support and maintain a public educational system.
6. The obligation of the state to furnish instruction "as good indeed for the poorest boy of the state as the rich man can furnish for his children with all his wealth."
7. Equality of educational opportunity everywhere in the state. Wherever the state permits a community to organize a public school, it shall see that the community is able to provide, with State aid if necessary, adequate educational facilities.
8. The organization of educational and taxation units large enough to adequately finance and furnish at least that minimum of education which the state regards as necessary to its continued existence in order that it may achieve its public welfare purposes.
9. The duty of educational institutions, in accordance with a state plan, to serve the state by informing the citizenship, by

furnishing trained, socially minded men, for the trades, professions and particularly the public service, by research in the great problems of our industrial and social life to-day calling for solution.

AN EDUCATIONAL PROGRAM

Capital funds and state aid. A comprehensive educational program will include the provision for making available large capital funds for education and for the distribution of these funds to affect beneficially educational progress. A comprehensive educational program will include a radical reorganization of our whole plan of state aid to equalize the burden of local taxation for education; to guarantee the educational rights of every child in the state; to stimulate educational experimentation; to secure the earlier adoption or the better enforcement of desirable educational policies.

Representative boards of education. A comprehensive educational program will include legislation making our boards of education representative of the principal elements of our population. State boards of education should include representatives from the laboring and farming groups, as well as from the business and professional groups.

Rural school reorganization. A comprehensive educational program will include a reorganization of our rural school system with a county board of education appointing a county superintendent and giving adequate powers to such a county board for securing larger school district units, better enforcement of the compulsory education law, higher qualifications for teachers, and a system of rural high schools.

Provision has been made in the cities for the educational program recommended for the rural schools, and city experience is a clear indication of the wisdom of the policy.

Development of a city school system. A comprehensive educational program will include for cities a further development along the lines of making the city school administration independent of the factionalism and politics of municipal affairs, and will clarify very much, indeed, the duties of boards of education in formulating educational policy, and the administrative functions of superintendents to carry them into effect.

Certification of teachers. A comprehensive educational program will include a thoroughgoing revision of our laws for the certification of teachers in the interest of all grades, of training schools for teachers, of the profession of teaching, and of the children in our schools.

One hundred per cent. normal schools. A comprehensive educational program will include one hundred per cent. normal schools, devoted to the highest service that a democracy can ask—the training of the teachers of the young.

Compulsory school attendance. A comprehensive educational program will include a clearly defined and more extended policy of compulsory school attendance, with adequate provision for a continuing school census, and provision for adequate administrative machinery to see that the state's policy is vigorously enforced everywhere in the state.

Revision of courses of study. A comprehensive educational program will include free textbooks in all public elementary schools and a reconsideration of the various materials entering into the courses of study so as to make possible a seven year elementary school that will give the child as much as the present eight year elementary school.

Adult education. A comprehensive ed-

ucational program will include provision for the training of persons of neglected or defective early training, and for every species of irregular student. A program for adult education will offer by evening, or day classes, by long or short courses, and by education suited to the needs and capabilities of persons not now provided for in the educational system, the opportunity to receive an education.

Municipal junior colleges. A comprehensive educational program will include junior colleges in connection with the regular public school system, distributed around the state, to relieve pressure on the freshman and sophomore years of the university, and to open up to a larger group of people the opportunities of a higher education.

Physical education. A comprehensive educational program will include provision for physical education in all grades, of all schools; for athletics that will reach the entire student body, and for ample playground and other recreational facilities in all schools.

MONEY AND EDUCATION

A great deal of the present discussion of education is based on what seems to me the radically wrong assumption that money is going to solve our educational ills. Money is going to help tremendously, and is perhaps a condition precedent to any reform, but the mere appropriation of money or the availability of money will not in any way meet the situation. There is an assumption in this connection that is frequently made, and that as teachers we ought to challenge, and that is that it is impossible to spend too much money on education. We can waste money on education exactly as we can waste it on anything else. We can waste it, for example, in building up educational machinery in the state or the city or the county out of all relation or proportion to the educational service to be rendered. We can waste public money for education in failing to have an educational program and permitting institutions to duplicate service already well provided for in the state and attempting educational services for which they are neither prepared nor qualified nor equipped to perform. Though this is true, it is also well to remember the following facts:

That we are far from the limit of wise public expenditure for education even for present services.

That there are a number of unmet educational needs, some of which are included in this program that must be financed in the immediate future.

That there must be provided in this state capital funds for education distinct from the common school fund in order that there may be intelligent planning of educational policy.

That our attitude toward public expenditure for education must be changed so that such expenditure will be regarded as "long term investments" in citizenship for the promotion of the common welfare.

TEACHERS' SALARIES

IT is on the basis of such a conception of the use of money for educational improvement that I am asking you to consider the question of teachers' salaries. I heartily endorse the very decided upward trend of teachers' salaries. It is an act of justice long denied. Teachers are beginning to see that the higher salary rates will not continue unless the public gets an improved teaching service. Teachers must develop more and more a professional conscience; they must realize that the great opportunity for service that is theirs, requires more training and better type of training than many teachers now receive, continued training of teachers after they

enter the service, and a profound realization of the great responsibility to the next and succeeding generations that rests upon them. The future is in their hands.

Upon public school authorities we would strongly urge the formulation of salary schedules for teachers, embodying the following principles:

1. Recognition of the amount of training with which a person begins teaching, or enters the particular school system.

2. Provision of a probationary period of not more than three years, and for safeguarding tenure of office during reasonably satisfactory service after the probationary period.

3. Annual increments for experience based on effective classroom work, and continuing beyond the sixth year (the average length of the Wisconsin teacher's school life) up to at least the tenth year.

4. Recognition of continued educational training after beginning teaching.

5. Provision in the salary schedule for the full-time pay for sickness of teachers upon a doctor's certification for a reasonable period.

6. Provision for half pay for a limited number of teachers who have been in the school system for at least three years, while gaining increased professional training during the regular school year in attendance at a well recognized teacher-training institution.

As a profession we must stand up unreservedly for some such element of merit in salary increases as is here proposed—not necessarily these specific proposals, but some such program. That way lies permanent educational advance and permanent welfare of the teaching force, and any other basis is likely to be opportunistic and to last only as long as the situation which created it lasts.

TEACHERS' COOPERATION IN SCHOOL ADMINISTRATION

A comprehensive educational program will recognize the important part that the classroom teacher must play in educational administration, not merely for the sake of the continuing improvement of the classroom teacher in her job, but for the sake of flexible, alert school administration. A necessary condition of permanent educational advance in Wisconsin, and elsewhere for that matter, is the enlistment of the active cooperation in the formulation, improvement, and administration of a comprehensive, progressive, educational policy, of the 15,000 classroom teachers in the state. Educational policy is not the exclusive concern of state educational officers of boards or other educational administrators; it is the vital concern of every teacher in the state.

The essence of the educative process is the interaction of a teacher and pupil, and the interaction between pupils in the class. All the school buildings, school equipment and machinery of educational administration is to improve the quality of these interactions. The vital educational officer is the class teacher. Her voice should be heard in the formulation of educational policy. Her cooperation should be sought in its progressive improvement and efficient administration.

Unless an educational policy can be translated into the attitudes and habits of the teachers in a school system or institution it is futile,—vain.

Wisconsin must cease being completely absorbed in the present educational machinery. It must look up and around. But more than that—it must look ahead and be able to anticipate through the educational organization the new aspiration of humanity, its new needs, and its new vision of the world. Educators must not

identify the new America with more governmental machinery. Education must be definitely related to the ideals and visions and spirit of the new America. The responsibility for making education a spiritual and moral force instead of a mere mechanism is squarely placed upon the teachers and superintendents of the public schools. To them, if to anybody, we look forward as the guiding principle of a better organized sensitive educational system which will embody Tennyson's vision of the world:

For I dipt into the future far as human eye could see;
Saw the vision of the world, and all the wonder that will be.

EDWARD A. FITZPATRICK
STATE BOARD OF EDUCATION,
WISCONSIN

THE ABILITIES INVOLVED IN ALGEBRAIC COMPUTATION AND IN PROBLEM SOLVING[1]

THERE is a tendency to compare algebraic computation unfavorably with problem solving in respect to the intellectual demands which it makes and the functions which it trains. The former is said to be "mechanical," or to be a matter of mere memory, or to be "formal," unlike the real thinking needed in life.

Such statements, though true to a certain extent, are misleading. It may be possible for a pupil to learn to manipulate coefficients, exponents, radicals, signs, parentheses, numerators, and denominators, by habituation to certain fixed rules like "In the product of two numbers like signs give plus and unlike signs minus," with very little genuine understanding of what he is doing or why he does it. It is, however, extremely hard for a pupil to learn to operate algebraically in this way. If he understands algebra, each habit usually helps the formation and retention of the others. Each habit is like a meaningful sentence in a story which has a general unity of plot and a few consistent characters. Just as the context helps a person to read each sentence in such a story, so the plan and content of algebra, when understood, help the pupil to remember who Mr. Coefficient is, what you do to $x + 14 = 2x + 8$ to find the value of x, and whether or not $-\sqrt{x}$ is the same as $\sqrt{-x}$. In proportion as the pupil does not understand algebra, but merely says its rules like a parrot and performs its operations as a trained dog does his tricks, he has the task of memorizing many unrelated facts which are of such nature as to become confused very, very readily. No parrot or dog could in fact be taught in twenty years to do the algebraic "tricks" which a bright child will easily master in twenty hours. Rules about what is done in multiplication and division with the other factors as distinguished from the coefficients are enormously difficult to apply if the pupil does not understand the general nature of literal notation.

What commonly happens is not that pupils lacking insight learn to compute mechanically, but that they *do not learn to compute*. If a pupil does learn to compute, he probably has gained some insight into algebra.

The case of computation *versus* problem solving is in this respect somewhat like that of knowledge of words and simple sentences *versus* ability to follow legal arguments or pass a difficult completion test. The latter taxes understanding somewhat more and requires a wider and more ingenious organization of one's mental forces, but the former is usually far from being a matter of "mere memory." So far is it, indeed, that even knowledge of

[1] The investigation reported here is one of a number made possible by a grant from the Commonwealth Fund.

single words is one of our best quick indices of intellect.

The argument from analysis and *a priori* considerations could be carried further and still be instructive, but the whole matter is perhaps better settled by evidence *a posteriori*, showing that in fact algebraic computation involves very much the same abilities that problem-solving does. This evidence may be had in the correlations between each of them and general intellectual ability with verbal, mathematical and other abstract and symbolic situations (which we may call I).

The common derogatory comments concerning computations leave the reader with the impression that computation correlates with I little above 0, but that problem-solving correlates with I nearly 1.00. This is very far from the truth. Seven years ago I gave to groups of freshmen in engineering schools the test in computation and the tests in problem solving shown below. These were parts of an elaborate set of examinations, the total weighted average of which is an excellent measure of I.[2] The correlations were as shown below.

CORRELATIONS WITH I (GENERAL ABSTRACT INTELLIGENCE)

	Arithmetical Verbal Problems	Algebraic[3] Problems	Algebraic Computation
34 students, Columbia College	.63	.80	.63
41 students, Mass. Inst. Tech.	.43	.53	.44[4]

[2] In one group the criterion for I included also high school records, college marks, ratings by instructors, and ratings of one another by the students themselves.

[3] One of the five was a computation; one was semi-verbal; the others were typical difficult verbal problems.

[4] The higher correlations for the Columbia group are due partly to the more accurate criterion, partly to the greater range of ability, and partly, probably, to chance.

ALGEBRAIC PROBLEMS

1. If $2 - \dfrac{\dfrac{x}{a} - 1}{\dfrac{2}{a}} = 0$, what does x equal?

2. A man has a hours to spend riding with a friend. How far can they ride together, going out at the rate of b miles an hour, and just covering the return trip at the rate of c miles an hour?

3. How much water must be added to a pint of "alcohol 95% pure" to make a solution of "alcohol 40% pure"?

4. Given that $2x - 3$ is less than $x + 5$ and that $11 + 2x$ is less than $3x + 5$, to find the limits (*i. e.*, the values) between which x lies.

5. A cube containing eight inches was plated with copper. The difference in the weight of the cube before and after the plating was 0.139 lbs. One cubic inch copper weighs 0.315 lbs. Form an equation from which the approximate thickness of the copper plating could be calculated. State whether the approximate estimated thickness by your equation would be less or more than the exact thickness.

ARITHMETICAL PROBLEMS

1. A boy is tested with a series of 16 problems in algebra. He did nothing at all with six of them; he did one correctly except for a mistake in changing signs; he did two with many mistakes in each; he did the others perfectly. He finished the work in 100 minutes. What was his total credit, supposing that he is given a credit of 8 for each example right, a credit of 3 for each example right except for changing signs, and a penalty of 1 for each minute spent over an hour and a half?

2. Suppose the following to be true: Out of every ten thousand men in an army 920 will probably be exposed to typhoid fever. Out of every thousand exposed to typhoid fever 350 will probably fall sick. Out of every hundred who will fall sick 20 will probably die of the fever. How many men will probably die of the fever in any army of one hundred and fifty thousand men?

ALGEBRAIC COMPUTATION

1. If $a = 6$ and $b = 1$, what does $2ab - ab^2$ equal?

2. If $x - 2a + b = 2x + 2b - 4a$, what does x equal?

3. If $a = 6$ and $b = 3$, what does $\sqrt{a}\sqrt{2b}$ equal?

4. If $\frac{6x+7}{5} - \frac{2x-1}{10} = 4\frac{1}{2}$, what does x equal?

5. If $\frac{1}{a} - \frac{1}{x} = \frac{1}{x} - \frac{1}{b}$, what does x equal?

6. If $\frac{x+a}{x-a} - \frac{x-a}{x+a} - \frac{x^2}{a^2-x^2} = 1$, what does x equal?

7. If $x = \frac{a+b}{2}$ what does $\left(\frac{x-a}{x-b}\right)^3 - \frac{x-2a+b}{x+a-2b}$ equal?

It should be noted that if we could arrange to have a hundred or more children selected at random and all given (or forced to take) education including algebra until they were eighteen, and if we then tested these hundred children with algebraic computation, problem solving, and the total I examination, both correlations would be very much higher than the .53 and .66 which were the averages for the Columbia and M. I. T. groups. They would probably be about .85 and .95, respectively. Consequently, if we wish to speak of the comparative amounts of I involved in computation and in problem solving, it is truer to speak of .80 and .90 than of .53 and .66.

To supplement the data given above I have computed the correlations of algebraic computation (10 min. test shown below) with the I score obtained in the Thorndike Intelligence Examination for High School Graduates of which it is a part, and have done the same for the sum of two five-minute tests with arithmetical problems, also contained in that examination. The facts are as follows:

	Correlations of Total Score in the Intelligence Examination with:	
	Score in Algebraic Computation	Score in Arithmetical Problems
371 candidates at Columbia	.47½	.64
77 candidates at Columbia[5]	.53½	.51
76 candidates at Columbia	.50	.66
180 candidates at an engineering school	.50½	.61
97 women candidates	.51½	.70

A weighted average correlation is about .50 for the computation and about .13 higher for the problems.

These correlations also would both be much higher for a random sampling of the total population, carried on in school work, including algebra, to the age of eighteen, probably about .8 and .9.

Algebraic computation as actually found is then emphatically an intellectual ability. It is not so indicative of intellect as problem solving, partly because it involves less abstraction, selection, and original thinking, partly because it involves only numbers, not numbers and words. It is, however, far above the reproach of being a mechanical routine which can be learned and operated without thought.

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EDUCATIONAL EVENTS

THE CHICAGO PROGRAMME OF THE DEPARTMENT OF SUPERINTENDENCE

"To project a panorama of country-wide educational needs" is the purpose of the programme announced for the Department of Superintendence of the National Education Association at Chicago, February 24-March 2. The main topics of the programme are:

1. What type of education does this country require?

2. What physical property will be necessary to insure its promotion?

3. What technique in education may be expected from our advanced curricula?

4. How much education can the country afford? How much more can we secure for our money through elimination of wasteful processes and organization?

[5] In this case the correlations were not with *Total Score*, but with Score in Part I plus Score in Part II minus the score in Algebraic Computation (or Arithmetical Problems.)

. What benefits shall accrue to the children of the United States through public education?

The tentative programme is as follows:

SATURDAY EVENING, FEBRUARY 25

The National Society for the Study of Education—Elizabethan Room, Congress Hotel.

MONDAY MORNING, FEBRUARY 27

Department of Superintendence

A. The Outlook in Education (1) For Cultural Education; (2) For Technical Education; (3) For Commercial Education.

B. Business Meeting—Nominations of officers from the floor.

MONDAY AFTERNOON, FEBRUARY 27

Department of Superintendence
Gold Room, Congress Hotel
Executive Session as Authorized at Atlantic City and Des Moines

1. A constitution and by-laws will be submitted for consideration.
2. Official decision upon the financial policy of the department.
3. A review will be made of all groups which may be considered for allied relationship with the department; final decision to be made by vote of the department.
4. Reports of committees.
5. Any or all business which may be proposed by members of the department.

Other Meetings

National Council of Education—Tiger Room, Hotel Sherman.
Department of Rural Education—Florentine Room, Congress Hotel.
National Association of Secondary School Principals—Red Room, Hotel La Salle.
National Society of College Teachers of Education—Ball Room, Auditorium Hotel.
National Council of State Departments of Education—Pine Room, Stratford Hotel.
City Training School Section—East Room, Hotel La Salle.
Council of Primary Education—Elizabethan Room, Congress Hotel.
Department of Elementary School Principals—Cameo Room, Morrison Hotel.

MONDAY EVENING, FEBRUARY 27

Department of Superintendence

A National Educational Policy—To be presented by an official representative from the U. S. Government at Washington.

TUESDAY MORNING, FEBRUARY 28

Department of Superintendence

Building and Physical Equipment—This program is in charge of Superintendent Randall J. Condon, Cincinnati, Ohio.

TUESDAY AFTERNOON, FEBRUARY 28

The allied groups, each in its own fashion, will discuss building operations and equipment as applied to particular interests.

National Council of Education—Tiger Room, Hotel Sherman.
Department of Rural Education—Florentine Room, Congress Hotel.
National Association of Secondary School Principals—Ball Room, Hotel La Salle.
National Society of College Teachers of Education—Ball Room, Auditorium Hotel.
City Training School Section—East Room, Hotel La Salle.
Department of Elementary School Principals—Cameo Room, Morrison Hotel.
National Association of Directors of Educational Research—Gold Room, Congress Hotel.
National Association of High-School Supervisors and Inspectors—Banquet Room, Auditorium Hotel.
Department of Vocational Education—Crystal Room, Hotel Sherman.

TUESDAY EVENING, FEBRUARY 28

National Society for the Study of Education—Joint meeting with the Department of Superintendence in the Auditorium Theater.
National Council of Education—Tiger Room, Hotel Sherman.
Department of Rural Education—Florentine Room, Congress Hotel.
National Association of Secondary School Principals—Ball Room, Hotel La Salle.

WEDNESDAY MORNING, MARCH 1

Department of Superintendence

An analytic study of the process of financing education on an economic as well as on a social basis.

In charge of Dr. Thomas E. Finegan, state superintendent of public instruction, Harrisburg, Pennsylvania.

11:00 A.M.—6:00 P.M., ballot boxes open for voting.

WEDNESDAY NOON, MARCH 1

Department of Superintendence
Elizabethan Room, Congress Hotel

A study of the advancement in the technique of education. Luncheon meeting in charge of Mr. J. W. Studdbaker, superintendent of schools, Des Moines, Iowa.

WEDNESDAY AFTERNOON, MARCH 1

National Council of Education—Tiger Room, Hotel Sherman.
Department of Rural Education—Florentine Room, Congress Hotel.
National Association of Secondary School Principals—Ball Room, La Salle Hotel.
National Society of College Teachers of Education—Ball Room, Auditorium Hotel.
National Council of State Departments of Education—Pine Room, Stratford Hotel.
Department of Elementary School Principals—Cameo Room, Morrison Hotel.
National Association of Directors of Educational Research—Gold Room, Congress Hotel.
National Association of High School Supervisors and Inspectors—Banquet Room, Auditorium Hotel.
Department of Vocational Education—Crystal Room, Hotel Sherman.

WEDNESDAY EVENING, MARCH 1

This evening will be given over to the regular

college dinners. An informal intercollegiate dinner will be given at the Hotel La Salle under the management of Frank Cody, Superintendent of Schools, Detroit, Michigan. Tables will be arranged for colleges not holding dinners of their own.

THURSDAY MORNING, MARCH 2

Department of Superintendence

This programme will set up the ideals to be achieved by public education. Dr. W. O. Thompson, president of Ohio State University, will make the opening address. Final business session.

THURSDAY AFTERNOON, MARCH 2

Round Tables and Meetings

Superintendents of Cities under 25,000—Red Room, Hotel LaSalle. Leader, Theodore Saam, superintendent of schools, Council Bluffs, Iowa.

Superintendents of Cities 25,000 to 100,000—Ball Room, Auditorium Hotel. Leader, E. A. Smith, superintendent of schools, Evanston, Illinois.

Superintendents of Cities 100,000 to 250,000—Hotel Sherman. Leader, Z. E. Scott, superintendent of schools, Louisville, Kentucky.

Superintendents of Cities 250,000 to 450,000—Pine Room, Stratford Hotel. Leader, Jesse H. Newlon, superintendent of schools, Denver, Colorado.

Superintendents of Cities over 450,000—Green Room, Congress Hotel. Leader, William L. Ettinger, superintendent of schools, New York City.

County Superintendents—Florentine Room, Congress Hotel. Leader, Edwin J. Tobin, superintendent of schools, Cook County, Illinois.

Department of Rural Education—Florentine Room, Congress Hotel.

National Association of Secondary School Principals—Ball Room, Hotel La Salle.

Department of Elementary School Principals—Cameo Room, Morrison Hotel.

National Association of Directors of Educational Research—Gold Room, Congress Hotel.

THURSDAY EVENING, MARCH 2

National Association of Directors of Educational Research—Florentine Room, Congress Hotel.

International Kindergarten Union—Gold Room, Congress Hotel.

A COOPERATIVE SYSTEM OF BRANCH LIBRARIES IN SCHOOLS

ALTHOUGH Washington, D. C., has the Library of Congress and the departmental libraries—perhaps the finest of their kinds in the world—yet its Free Public Library, on which the mass of the population must rely for supplemental educational resources, has never been able to develop as have the public libraries of comparable cities. Washington has at present but one branch library. Through its central library, this one branch, and through service to the schools, it has a home circulation of a million volumes a year. Plans are now being worked out which when realized will enable the library, in cooperation with the Washington school system, to give adequate library service to school and adult population. These plans include a system of separate branch libraries, to be confined to the thickly built-up portions of the District of Columbia, and—to supplement them—a series of branches, sub-branches, and stations in schoolhouses to furnish library service to the less thickly populated and suburban sections of the District.

In the working out of plans, particularly for these branch libraries in schools, the board of education and the board of library trustees have recently adopted a joint report governing the establishment and conduct of such branch libraries. The report, drafted by the superintendent of schools and the public librarian, is in part as follows:

Branch libraries in public schools are proposed of three types: (1) Ten branches (7 to 12 hours of daily service); (2) Nine sub-branches (21 hours or more weekly service); (3) Eight stations (4 hours or more weekly service).

These ten proposed branches are designed to be placed in junior-high and elementary schools, located chiefly in suburban sections. Such branches will have their own book stocks and staffs and will be open during school hours, afternoons and evenings. The nine sub-branches are to be conducted by the staffs of neighboring branches. They will have small permanent collections of books which will be augmented by loans from the central library or neighboring branches. Service will be arranged to suit the school and community; *e. g.*, two mornings, two afternoons and two evenings. Some will be operated in groups, with alternate service. The eight stations will be still smaller collections, open once or twice weekly; *e. g.*, once in school hours and one evening.

Procedure in the establishment of branch libraries—1. When the board of education plans a new building, or the enlargement of an old building, it shall consider the desirability of making provision for a school branch library. Its conclusion should be based upon the location of the new school building in relation to the program for branch libraries in schools proposed by the library trustees.

2. If the board of education decides to include provision for a school branch library, the board

shall indicate to the library trustees the location, size of room, and other proposed facilities for such advice and suggestions as the library trustees may care to offer. If the board of education decides not to include provision for a school branch library, the board shall so inform the library trustees.

3. Nothing indicated under 1 and 2 above shall be understood as precluding the expectation that either board may at any time invite the attention of the other board to the consideration of any subject in connection with the establishment of branch libraries in the schools.

4. Plans for the permanent equipment of the room shall be prepared as are other plans for schools and in addition after consultation with the public librarian.

Equipment of branch libraries in the schools—1. The board of education shall provide for all physical equipment for the library which is a permanent part of the room, such as built in shelves, closets, toilet facilities, cloak rooms, etc.

2. The board of library trustees shall furnish and be responsible for all moveable equipment, such as tables, chairs, desks, map and periodical cases.

3. The board of library trustees shall also furnish and be responsible for all books, pamphlets, periodicals, maps, and technical library supplies, including typewriters when needed.

Maintenance—1. The board of education shall furnish and pay for heat, light, soap, towels, janitor service, and telephone service for the branch libraries in the schools. Such janitor service shall cover days when schools are not in session and be paid for in accordance with regulations to be established by the board of education governing such service.

2. The board of library trustees shall furnish and pay for all professional library service in the branch school libraries, including transportation of books and all library supplies.

Administration of branch libraries in the schools—1. In all matters concerning the professional conduct of the branch school libraries, the library staff shall be considered a part of the staff of the public library and all appointments and transfers shall be made by the public librarian.

2. In all matters concerning the heating, ventilating, care of rooms and, in general, the physical side of the school branch library, the library staff shall be considered a part of the school organization. In these matters the principal of the school shall have the same jurisdiction over the librarian of the branch library that she has over teachers. The relation of the library staff to the janitor shall be through the principal of the building in all cases when the principal is in the building. In the absence of the principal, the janitor shall serve under the direction of the branch librarian.

3. All questions that arise relating to the administration of the school libraries shall be handled by the public librarian and the superintendent of schools, subject to instructions from their respective boards.

4. The schedule of hours of opening any branch shall be by agreement between the public librarian and the superintendent of schools.

5. The regulations made by the public library for the use of branch libraries in public schools by the public school pupils shall be subject to the approval of the superintendent of schools.

AVERAGE SALARIES OF HIGH SCHOOL TEACHERS

THE United States Bureau of Education made public on February 6 the following tables showing the average salaries paid high school teachers in the United States in 1921, arranged in groups according to the size of the cities:

CITIES 100,000 POPULATION AND OVER

United States	$2,484	Washington	2,191
New York	3,181	Dist. of Columbia	2,165
New Jersey	2,681	Maryland	2,136
Illinois	2,552	Rhode Island	2,085
Indiana	2,527	Minnesota	2,034
Missouri	2,463	Colorado	2,019
Pennsylvania	2,400	Nebraska	1,970
Ohio	2,377	Connecticut	1,950
Massachusetts	2,434	Kentucky	1,931
California	2,330	Oregon	1,920
Michigan	2,251	Georgia	1,743
Wisconsin	2,231	Virginia	1,639
Louisiana	2,228	Alabama	1,586

CITIES 30,000 TO 100,000 POPULATION

United States	$1,847	Delaware	1,796
California	2,282	Colorado	1,793
Oklahoma	2,135	New York	1,760
New Jersey	2,069	Illinois	1,713
Ohio	2,067	Rhode Island	1,706
Connecticut	2,030	Utah	1,669
West Virginia	2,028	Pennsylvania	1,660
Wisconsin	2,009	Nebraska	1,610
Massachusetts	2,343	Virginia	1,540
Kansas	1,939	New Hampshire	1,525
Minnesota	1,922	Maine	1,481
Georgia	1,920	Missouri	1,459
Indiana	1,893	Tennessee	1,456
Michigan	1,889	Alabama	1,355
Arkansas	1,883	Texas	1,323
Iowa	1,873	Kentucky	1,079
Washington	1,820		

CITIES 10,000 TO 30,000 POPULATION

United States	$1,738	Colorado	1,683
California	2,255	Wisconsin	1,666
Arizona	2,124	Illinois	1,630
New Jersey	2,092	Virginia	1,621
Montana	1,989	Rhode Island	1,582
Michigan	1,879	Louisiana	1,555
South Dakota	1,877	New Mexico	1,550
Idaho	1,814	Mississippi	1,509
Washington	1,800	North Carolina	1,501
Connecticut	1,799	South Carolina	1,480
Oklahoma	1,798	Pennsylvania	1,462
New Mexico	1,789	Vermont	1,402
Ohio	1,786	Arkansas	1,389
North Dakota	1,737	Maryland	1,375
Wyoming	1,737	Texas	1,373
West Virginia	1,729	Alabama	1,325
Iowa	1,728	Maine	1,315
Massachusetts	1,719	Kentucky	1,304
Kansas	1,717	Georgia	1,263
Minnesota	1,714	Missouri	1,262
New York	1,692	Tennessee	938
Indiana	1,688		

CITIES 2,500 TO 10,000 POPULATION

United States	$1,520	Vermont	1,530
California	2,045	Ohio	1,524
Arizona	2,020	Massachusetts	1,520
Nevada	1,809	Minnesota	1,513
South Dakota	1,752	Louisiana	1,498
Wyoming	1,749	Indiana	1,453
Oklahoma	1,660	New York	1,442
New Mexico	1,660	Arkansas	1,420
Michigan	1,658	Pennsylvania	1,414
Colorado	1,648	Florida	1,413
North Dakota	1,635	North Carolina	1,361
Nebraska	1,631	New Hampshire	1,353
Utah	1,606	Georgia	1,350
Wisconsin	1,605	Maine	1,316
Washington	1,604	Missouri	1,314
New Jersey	1,604	Mississippi	1,293
Idaho	1,597	Texas	1,235
West Virginia	1,595	Virginia	1,227
Illinois	1,591	Alabama	1,227
Iowa	1,549	Tennessee	1,211
Kansas	1,541	Kentucky	1,181
Oregon	1,539	South Carolina	1,181

PENNSYLVANIA'S STATE EDUCATION PROGRAMME

FOLLOWING criticism of the Pennsylvania state educational programme under Superintendent Thomas E. Finegan by the State Grange and other bodies in the state, the Pennsylvania State School Directors' Association on February 10 adopted resolutions expressing confidence in Dr. Finegan and in his programme.

IN an address on February 9 Superintendent Finegan defended his administration. He declared that he had accepted the invitation to head the school system of Pennsylvania "on the understanding opportunity would be afforded to develop a school system which should be second to the system of education in no state in the country." He said:

I am taking this subject up now because of the recent criticisms of the department, and particularly of the superintendent, and with which you are thoroughly familiar. There are, in substance, three criticisms:

1. That it is the purpose of the department to usurp the functions and prerogatives of county superintendents and school directors.

2. That the expenditures of the department are excessive when compared with the expenditures of the department under the predecessor to the present superintendent, and when compared with the expenditures of Illinois, Indiana, Michigan, Minnesota, Ohio and Wisconsin.

3. That many of the positions of the department have been filled by persons not residents of the state, at exorbitant and excessive salaries.

The county superintendents have spoken for themselves upon the validity of that portion of the first criticism which affects their interests. These officers, at a recent annual meeting of their organization, endorsed in detail the whole plan of educational program which is now in operation.

The second criticism is to the effect the amount expended for salaries in the present department of public instruction is eight times the amount expended by the previous administration of the department.

That statement is false, and it was known to be untrue when it was made. It was not intended the statement should express the truth but it was deliberately and maliciously intended to deceive the public.

The superintendent said that under the former administration there were two departments, the department of public instruction and the state board of education, while other agencies directed certain activities now under supervision of the department.

In comparisons of educational expenditures in this state with those of other states he said failure had been made to include in the totals of other states appropriations for education work carried on by different departments, where such appropriations in Pennsylvania come under the department of public instruction.

The total expenditures of Illinois, Michigan, Ohio, Indiana, Minnesota and Wisconsin for

education administrative purposes, he said, are $812,030. He added:

The combined population of those six states is 2.7 times the population of Pennsylvania, and the aggregate amount which these states are actually expending for salaries in the administration of their education activities is twice that expended by Pennsylvania.

The third criticism deals with the employment of people from out of the state and with salaries paid the employes of the department. In the selection of members of the department staff I have been governed by the sole criterion of qualification for the service to be rendered. No other consideration has controlled the appointment of members of the staff.

ANNUAL REPORT OF THE CARNEGIE FOUNDATION

The Carnegie Foundation for the Advancement of Teaching made public on February 12 the sixteenth report of the president and treasurer for the year ending June 30, 1921. It showed that the Foundation had distributed $8,920,661 in retiring allowances and pensions to 999 persons during the sixteen years of its existence.

Of this sum, according to the report, $705,000 has been paid to former teachers of Harvard, $609,000 to former teachers of Yale, $525,000 to former teachers of Columbia University, and $407,000 to former teachers of Cornell. The remainder has gone to 85 different institutions.

There are now operative 379 retiring allowances and 230 widows' pensions, 90 of which were granted during the last year, entailing an annual expenditure of $959,690. The average allowance paid is $1,575. Among the allowances granted during the year were those of Presidents Dabney of the University of Cincinnati, Stanley Hall of Clark University, Hadley of Yale, Dean Victor Vaughan of the University of Michigan, and Professor Paul Henry Hanus of Harvard.

The present financial condition of the Foundation was set forth as follows:

The total resources now amount to $25,513,000, of which $15,192,000 belong to the permanent general endowment, $8,206,000 to a reserve fund to be spent in the retirement, during the next sixty years, of teachers now in associated institutions, $1,250,000 to the endowment of the Division of Educational Enquiry, and $570,000 to a reserve fund to be expended in aiding universities and colleges to adopt the new plan of contractual annuities. The investments are all in bonds.

Four institutions joined the list of associated institutions during the year—Washington and Lee University, Cornell College, Iowa, Converse College and Fisk University. Twenty-one institutions which joined the forty-one already contributing toward contractual annuities for their retired teachers were Acadia University, Antioch College, University of Alabama, Bates College, University of Cincinnati, Clark University, Converse College, Cornell College, University of Dubuque, Fisk University, Lehigh University, Leland Stanford Junior University, Marietta College, Meadville Theological School, Mount Holyoke College, Ohio Wesleyan University, Rollins College, Smith College, Washington and Lee University, Wesleyan University and Winthrop College.

The Teachers' Insurance and Annuity Association of America, which was established by the Foundation through a gift of $1,000,000 to provide insurance and annuity protection for college teachers without overhead charges, has written for teachers in 300 different institutions 982 insurance policies covering $4,973,000 of insurance and 776 annuity contracts providing $917,000 annual income at retirement. A plan has been provided for the participation of policy holders in the management of the association, the report points out.

The report discussed entrance requirements for colleges, training of teachers and legal education, a list of law schools, entrance requirements, time of day at which sessions were held and duration of course. A summary of recent movements in the development of new pension systems and the progress of pension legislation and literature is included.

EDUCATIONAL NOTES AND NEWS

Clarence E. Meleney and William McAndrew, veteran associate superintendents in the New York public school system, were unanimously reelected for six-year terms at the meeting of the board of education on February 8, following charges on the part of

the press and civic organizations of the city that the municipal administration was attempting to cause them to be dropped from the school system for failure to accept political dictation. Two other officials reelected at the same time were C. B. J. Snyder, superintendent of buildings, and Patrick Jones, superintendent of school supplies. The nomination of Miss Elizabeth McNally as director of speech improvement, a position said to be sought by Miss Agnes Birmingham, Mayor Hylan's cousin, was rejected.

THE New Jersey Senate on February 6 confirmed the nomination of John F. Enright as State Commissioner of Education of New Jersey, to succeed himself for a term of five years. The salary is $10,000. Commissioner Enright has announced that the three present assistants will be retained at salaries of $6,500 and that he will appoint an assistant Commissioner in charge of interpretation of school law in the near future.

DR. TRUMAN L. KELLEY, of Stanford University, will leave at the end of the spring quarter for a year's study with Karl Pearson, of the University of London, on problems connected with the application of mathematics and statistical methods to biological problems.

DR. LE A. WILLIAMS, of the University of North Carolina, has tendered his resignation from that institution to take effect at the end of this academic year. He goes to the University of California as professor of Secondary Education in the School of Education.

PROFESSOR A. E. SUTHERS, who since December 1920 has been on a leave of absence, taking an extensive tour of the Far East, has assumed active charge of the Missions Department of Ohio Wesleyan University.

NORMAN H. HALL, Secretary of the National Week of Song Organization, announces the week for 1922 as that of February 19 to 25. This will be the 7th annual observance of the National Week of Song.

CHARLES HENRY BRADLEY, for 34 years superintendent of The Farm and Trades School, at Thompson's Island, Boston, died on January 30. He was born in Johnson, Vt., on February 13, 1860, and was educated in the schools of his native town and in the State Normal School. In 1880 he came to Massachusetts as an instructor in the State Primary School at Palmer, becoming assistant superintendent there in 1885. In March, 1888, he was called to the superintendency of The Farm and Trades School, on Thompson's Island, Boston Harbor, where he had remained ever since.

PROFESSOR WOOSTER WOODRUFF BEMAN, head of the mathematics department of the University of Michigan, died at his home in Ann Arbor on the morning of January 18. Last June Professor Beman completed fifty years of continuous service at the University, a record unequaled by any other professor in the history of the institution.

CHARLES E. BUNNELL, president of the new Alaska Agricultural college, is in the United States seeking instructors for the institution, which is expected to be open for students next September. The college campus is situated on a tract of land four miles from Fairbanks on the main line of the new Government railroad, set aside by Congress in 1915. The college itself was formally established in 1917 by an act of the Territorial Legislature, and $60,000 set aside for buildings and equipment. The sum proved inadequate, and in 1921 an additional appropriation of $41,000 was made. Most of the operating expenses will be met by the Territory of Alaska, but $50,000 will be available from Federal funds. The first year's curriculum will include four courses—agriculture, general science, home economics, and mining—under present plans. Special short courses in mining will be given to meet the requirements of prospectors and others unable to attend during the full college year.

A GIFT of $200,000 in cash has been received by the University of California from the estate of E. P. Kraft, to be held in trust for the purpose of creating at the University scholarships to be known as the "Edward Frank Kraft Scholarships." Under the terms of the trust, the scholarships are to be apportioned among the various colleges except Agri-

culture, for which scholarships have previously been provided out of the estate of George H. Kraft.

A BEQUEST of $150,000 to Wesleyan University was disclosed at the reading of the will of Mrs. Dexter Smith, of Springfield, Massachusetts, who died recently. The money will be available either for the erection of a new library building or for the general endowment fund at the discretion of the trustees.

YALE'S building programme for the next five years calls for the expenditure of between $10,000,000 and $12,000,000 for new structures, President James R. Angell said in an address on February 1 before the Yale Alumni Association of Hartford County.

NEARLY $80,000,000 in school construction for the year 1922 is contracted for in New York State, including a $70,000,000 program in New York City, according to the State Education Department.

WHEN the Board of Education of Memphis, Tennessee, retired last month, it left a deficit in operating expenses of $250,000, according to Hardwig Peres, president of the board. To run the schools to July 1, 1922, the end of the fiscal year, requires $720,000. In March, 1922 the Board expects to receive of the City, State and County taxes for the year 1921, about $500,000. Without further income, the next deficit on July 1, 1922 is $470,000. This year the Board is issuing $600,000 short term notes maturing October 1, 1922, which will absorb the $470,000 deficit and leave in bank $130,000, the remainder of the note proceeds. To operate the schools to October 1, 1922 will require $360,000. "Deducting the $130,000 on hand, this leaves a deficit of $230,000 in addition to the maturing short term notes," says President Peres. The total due October 1, 1922, will be $830,000. "There should be in our next State Revenue Act a mandatory school tax of not less than 60 cents so that under no circumstances will our schools be stricken with the baleful menace of being forced to close."

"A RATHER alarming situation in Denver school matters was relieved when the Tax Commission granted the petition of the Denver Board of Education for permission to increase its levy from 7.57 mills (1920-21) to 8.736, an increase of fifteen per cent.," says the *Colorado School Journal*. The situation was alarming because an unexpected increase of 7.6 per cent. in enrollment would of itself more than absorb the 5 per cent. increase allowed by law; because the generous salary schedule lately adopted calls for a much larger salary payroll; and because considerable construction under way needs completion, with 10,000 pupils still improperly provided for. The amount of money added to the school revenue is nearly $800,000, making the total income $4,586,000.

IT is reported that the Committee in the Kentucky Senate to which was referred the bill forbidding the use in State-supported educational institutions of text-books in which the doctrine of evolution is taught, has reported unfavorably on the original bill. The movement for the bill is said to have been forwarded by lectures in the State by Mr. William Jennings Bryan. Among those who have sent telegrams to President Frank L. McVey of the University of Kentucky opposing the proposed law are Charles W. Eliot, president emeritus of Harvard; President James R. Angell, of Yale University; President Nicholas Murray Butler, of Columbia University; Robert L. Kelly, executive secretary of the Association of American Colleges, and Charles S. MacFarland, general secretary, Federal Council of the Churches of Christ in America. Dr. Kelly wires: "In the name of 250 colleges and universities located in 42 states we pray Kentucky will not commit intellectual suicide by prohibiting the teaching of evolution or the use of books favoring evolution."

OKLAHOMA is to have the assistance of the United States Bureau of Education in surveying the schools of the State. The commission met with representatives of the Federal bureau in January and arranged a programme. Professor Henry D. Rinsland of Ardmore, Superintendent E. D. Price of Enid, and Superintendent W. G. Masterson of McAlester were called before the commission for consulta-

tion, we learn from the *Oklahoma Teacher*, and these active school men addressed the commission on survey matters, explaining what Oklahoma had already done in some localities. Assistant State Superintendent E. N. Collette and Rural School Supervisor E. A. Duke assisted Mr. Vaughan, secretary of the commission, in outlining the work. The federal bureau will send men to Oklahoma in the near future to proceed in the survey. Secretary Vaughan has established permanent headquarters at the Capitol building in Oklahoma City and actual work has begun on the survey. Different types of counties were grouped for study as representing different conditions under which Oklahoma schools operate. Rural school conditions will receive first attention. Chairman R. H. Wilson believes that constructive recommendations for school legislation will result.

STATEMENTS that "Wharton School of the University of Pennsylvania has recently announced the entire abandonment of the final written examination," are declared to be erroneous by officers of the school. The Wharton School faculty has voted to omit the *mid-year* examinations for this year only, and to base the marks for the first term on the monthly hour examinations, but final examinations will be given as usual, it is asserted.

A HIGH school course designed to train boys and girls for wholesale and retail selling has been offered in three high schools in New York City, the Newtown High School, the Julia Richman High School, and the Haaren High School. In each case the course was given on the week-in and week-out cooperative basis: that is, in the latter part of the course pupils attend school only every other week; the week between being spent at work in the store. In the Julia Richman and the Haaren High Schools the course included five hours of salesmanship and five hours of merchandise a week for two years. Last year all the cooperative work was centralized in the Haaren High School and both Newtown and Julia Richman were obliged to discontinue their courses. This year Newtown has obtained special permission to revive cooperative work, and a salesmanship course is making a fresh start there.

THE Fifth Annual Conference on Physical Education, under the auspices of the United States Commissioner of Education, will be held in Chicago on February 28.

THE following is the programme for the Chicago meeting of the National Association of Directors of Supervised Student Teaching: Monday, February 27, 1922, 9:00 a. m. 1. Administration of Student Teaching in the Teacher Training Institutions of the United States. E. I. F. Williams, Professor of Education, Heidleberg University, Tiffin, Ohio. 2. The Case Method for the Study of Teaching. William P. Burris, Dean of the College for Teachers, University of Cincinnati. 3. The President's Annual Address. A. R. Mead, Professor of Education, Ohio Wesleyan University, Delaware, Ohio. 4. Discussion of Certain Papers Given at the Atlantic City Meeting of N. A. D. S. S. T. Fiske Allen, Director of the Training School, Eastern Illinois State Teachers College, Charleston. 5. Graded Units in Student Teaching. H. C. Pryor, Head of Department of Education, Northern Normal and Industrial School, Aberdeen, South Dakota. 6. Open Discussion of Papers Given. Tuesday, February 28, 1922, 9:00 a. m. 1. Preparing Teachers Through Preparation. H. L. Miller, Professor of Education and Principal of University of Wisconsin High School. 2. Methods of Making Assignments for Student Teaching. H. R. Douglass, Professor of Secondary Education, University of Oregon. 3. Student Teaching and the Junior High School. H. C. Foster, Head of Department of Education, Michigan State Normal College, Ypsilanti. 4. Essential Factors in the Supervision of Student Teaching. H. W. Nutt, Director of Training School, University of Kansas. 5. Importance of Aims of Education in Teacher Training. H. G. Swanson, Professor of Education and Director of Demonstration School, State Teachers College, Kirksville, Mo.

AN informal conference on Teachers' Councils will be held in the Sherman Hotel, Chicago, Tuesday, February 28, at 3:30 p.m., under the auspices of the National Council's Committee on Participation of Teachers in Management. Particular attention will be directed to the

results of the experience thus far gained from the operation of such councils. For further information address Professor Harlan Updegraff, University of Pennsylvania, chairman.

DISCUSSION

THE "FIRST" GRADUATE SCHOOL OF EDUCATION

To the Editors of School and Society:

Dr. Luckey, of the U. S. Bureau of Education, writes in School and Society of December 17 as to the first strictly graduate school of education. Dr. Luckey is some years too late and some 1,500 miles too far west in his location of such a school.

The School of Pedagogy of New York University, established in 1890, has from its start until 1916 been purely a graduate school, giving work only for graduate degrees in education. Other schools of the same university have, however, given undergraduate credit for courses in the School of Pedagogy; and thus, although a purely graduate school in itself, the School of Pedagogy has through this situation been falsely labelled as not fully graduate. In 1916 undergraduate work was established in the School of Pedagogy and also a bachelor's degree, in order to meet the situation and needs of New York City, but without discontinuance of, or detriment to, the graduate work of the school.

It will therefore be seen that long before the University of Nebraska dreamed of establishing, much less actually established, its graduate school of education, and while Teachers College was as yet merely an undergraduate school, New York University modestly and without self-advertising pioneered the way for graduate professional study in education.

Stephen G. Rich

Concord State Normal School,
Athens, W. Va.

QUOTATIONS

LORD BRYCE AS TEACHER

Lord Bryce was an interpreter and defender of the classical type of education. This type is, of course, literary and even in certain relations linguistic. . . .

But Lord Bryce was, in certain terms, a scientist as well as a classicist. While he held true to the Oxford classical model, he did not suffer a neglect of the Cambridge scientific tradition. His first book, preceding by a short time 'The Holy Roman Empire," was a volume on "The Flora of the Island of Arran." No part of the whole domain of truth, as given to the mind of man, was foreign to him. All that interested man interested him. All that belonged to man he wanted to learn. His habit of questioning is one of the chief characteristics which his friends of the years and of the continents remember.

To Lord Bryce, as to most educators, education stood for a method of using the mind. A chief part of this method lay in the weighing of evidence. The power of discovering a truth, the power of assessing a truth at a just value, the power of uniting a truth to truth, and the power of inferring a new truth with accuracy and fullness were to him an essential part of the whole educational process. For years living in the house of the British Ambassador at Washington, he was within a short distance of Lafayette Square, on which lived Henry Adams. Henry Adams, through both his volume on "Education" and through personal remark, was constantly insisting that education consisted in the weighing of evidence. The Englishman and the American were one in this interpretation of a primary element in the great human force.

Joined to this sense of weighing evidence, education was to Lord Bryce a training in the sense of relations. No fact, no truth, no event, stood alone. Standing alone, the truth, the fact, the event had little or no meaning. In this respect also he was not unlike Henry Adams. For I once heard Henry Adams say, in the classroom at Harvard College, that, though he was a professor of history in Harvard College, he never remembered a date. He meant by the simple phrase by which he surprised us youngsters that he recalled events, not in relation to time but in their relation to each other as causes or consequences. I am sure Bryce never forgot a date. But more important to him than a date was the relation of an event happening in one year to other

events happening in the same year or in other years. . . .

To Lord Bryce there was a third element in education. Education sets standards. Standards of character, conduct, achievement, are important for any people, and in particular are they important for a democracy. These standards arise from traditions, from environment, and from other forces and conditions. Education has much to do with creating and maintaining standards. . . .

To Lord Bryce, moreover, education in a democracy was and is a training in leadership. The lack of leadership in the world at the present time he deeply lamented. In a lecture at the Williamstown Institute, last summer, he said that the world does lack leadership in the present crisis. He also said, "The belief is common that, when the occasion arises, leadership emerges." In emphatic phrase, he added, "Ladies and gentlemen, that is not true!" The year 1914 showed a dominant need of leadership, and the leadership was lacking. The proper leadership is trained in the college and the university.—Charles F. Thwing in the *New York Times*.

THE DES MOINES TEACHERS' SALARY SCHEDULE

THE Des Moines salary schedule was adopted May 17, 1921, and all Des Moines teachers now have contracts under the provisions of that schedule. The schedule, as finally approved, was the result of several months of very careful investigation and scientific study, followed by several conferences of principals and members of the Advisory Council, which consists of representative teachers, in which conferences the preliminary drafts of the salary schedule were fully and freely discussed and changes made. It is doubtless due to this democratic plan of procedure that the schedule has now been in operation so satisfactorily for several months.

What is regarded as the chief point in favor of the Des Moines salary schedule is the application of the principle of equal pay for equal qualifications regardless of grade or type of school in which the teacher may be serving. This means that given the same professional preparation, experience and personal qualities, the teacher in the kindergarten receives the same salary as a teacher in the senior high school.

Under the Des Moines salary schedule the minimum salary is $1,200 and the maximum is $3,000. This minimum salary is open to the teacher with two full years of approved professional preparation, following high school graduation, in a standard normal school, college or university and two years of approved, regular full-time teaching experience in a graded school-system maintaining at least a nine-month school year. A teacher having three years of professional preparation and two years of experience, receives $1,370 the first year. A teacher with four years' professional preparation, a bachelor's degree and two years of experience receives $1,550 the first year. A teacher with five years of professional preparation and a master's degree with two years of experience receives $1,740 the first year. The annual increment for the teacher with two years of professional preparation is $110. The annual increment is $120, $130 and $140 respectively in the other three classes. In determining the salary to be paid a teacher, credit for not more than five additional years of teaching experience may be allowed beyond the required two years. This allowance would make it possible for a teacher to enter the Des Moines system at a higher salary than the minimum for the class in which professional preparation would put such a teacher. It has not been possible, because of the fact that the funds were not available to put teachers who were already in the service, or those who entered the Des Moines schools this year, at the exact point on the salary schedule where they belonged. The best that could be done was to give them 15 per cent. of the difference between the salary which they had been receiving and the salary which their rating on the schedule showed them to be entitled. All teachers now employed in the Des Moines schools will, it is confidently expected, receive the increment which the salary schedule indicates for next year.

A teacher with two years of preparation and two years of experience (Class I) will receive

a maximum of $1,860 at the end of nine years. A teacher with three years of professional preparation and two years experience (Class II) may go to $2,210 in ten years. This means that she will receive one more annual increment than does the Class I teacher. The teacher with four years of preparation and a bachelor's degree with two years of experience (Class III) may go to a maximum of $2,590 in eleven years. Her annual increments continue a year longer than they do for a Class II teacher. The teacher with five years of preparation, a master's degree and two years of experience (Class IV) may go to a maximum of $3,000 in twelve years. Her annual increments continue for a year longer than do those for a teacher in Class III. The two years of required experience is included in each of the above statements but these statements do not allow for the credit which may be received for experience in addition to the required two years, so it can readily be seen that it is possible to reach the maximum salary for each class in a shorter time than stated above. It is also possible, through leaves of absence, through summer school attendance or through study in classes offered during the school year, for a teacher to advance to a higher class and thus secure a higher salary.

As an example of the effect of the salary schedule upon the improvement of the teachers already employed in the Des Moines schools the following comparison of the numbers of teachers pursuing professional study this year with last year is significant:

	Number of teachers
Summer of 1920	112
School year of 1920-21	112
Total	224

	Number of teachers
Summer of 1921	152
School year 1921-22	362
Total	514

The above figures show that during the year just preceding the adoption of the salary schedule there were 224 teachers who did professional work as contrasted with 514 this year which is an increase of 290 or 129.42 per cent. over the preceding year.

The following is a tabular view of the salary schedule:

YEARS OF EXPERIENCE IN DES MOINES SCHOOLS	PROFESSIONAL PREPARATION In addition to graduation from an approved four-year high school or the equivalent			
	CLASS I Successful completion of a two-year course in a normal school or the equivalent	CLASS II Successful completion of a three-year course in a normal school or the equivalent	CLASS III Successful completion of four years of college work with a standard bachelor's degree[1]	CLASS IV Successful completion of five years of college work with a standard master's degree[1]
	Increment $110 (Schedule 1)	Increment $120 (Schedule 2)	Increment $130 (Schedule 3)	Increment $140 (Schedule 4)
First year	$1,200	$1,370	$1,550	$1,740
Second year	1,310	1,490	1,680	1,880
Third year	1,420	1,610	1,810	2,020
Fourth year	1,530	1,730	1,940	2,160
Fifth year	1,640	1,850	2,070	2,300
Sixth year	1,750	1,970	2,200	2,440
Seventh year	1,860	2,090	2,330	2,580
Eighth year	.....	2,210	2,460	2,720
Ninth year	.....	.....	2,590	2,860
Tenth year	.....	.....	.....	3,000

[1] The bachelor's degree implies a four-year course in an approved institution conferring the A.B., B.S. or Ph.B. degree. The master's degree implies an A.M. or an M.S. degree from an approved institution.

In addition to a salary schedule for teachers, Des Moines also has a teachers' pension plan under the terms of which it is possible for a teacher to retire at the age of fifty-five on an annual pension of $480.